Heating & Air Conditioning
Amana®

VTC / VTH

Vertical Terminal Air Conditioner and Heat Pump

Cooling: 8,900 - 23,100 BTU/h
Heat Pump: 8,500 - 22,400 BTU/h
Electric Heat: 5,100 - 34,100 BTU/h
Up to 3.0 COP

Product Features

- Chlorine-free R-410A refrigerant
- Evaporator coil freeze protection
- Compressor restart delay
- Low-ambient lock-out
- Adjustable fresh air damper
- Wall-mount thermostat
- Electrical disconnect
- Random unit restart
- Front desk control
- Fan on/off delay
- Adjustable fresh air damper
- Completed insulated cabinet for quiet operation
- "Ductable" to multiple rooms
- Full-length wall panels available (eliminates closet door)

¾ Ton through 2 Tons

R-410A REFRIGERANT

5 YEAR COMPRESSOR LIMITED WARRANTY*

1 YEAR PARTS LIMITED WARRANTY*

ETL LISTED US

* Complete warranty details available from your local dealer or at www.amana-ptac.com.

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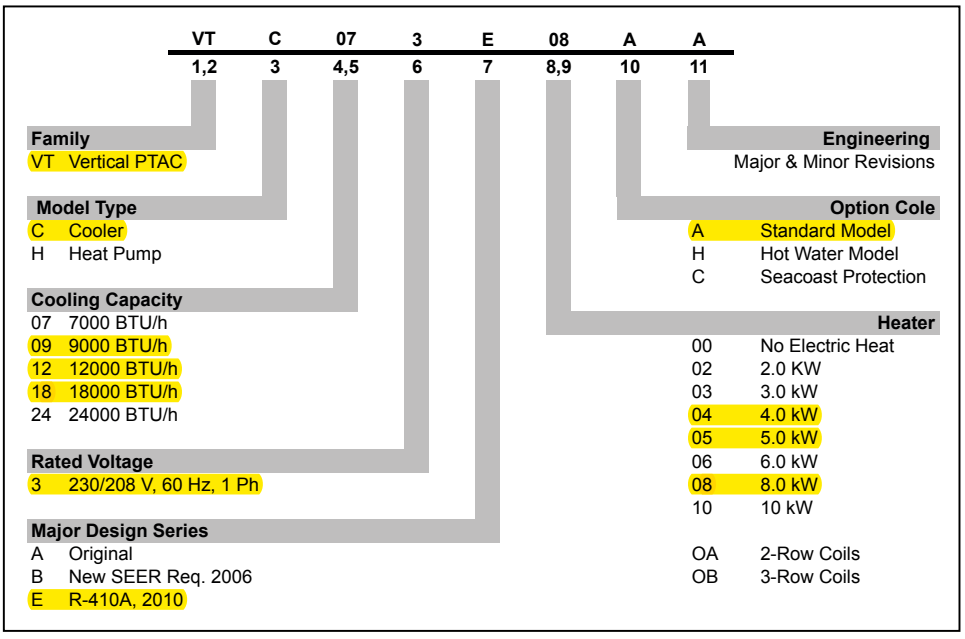
FEATURES

- **FRONT DESK CONTROL**
  Enable or disable each unit from the front desk to save energy used to condition unoccupied rooms.
- **FAN DELAY**
  Allows the evaporator blower to continue running for up to 45 sec. after the thermostat is satisfied, maximizing cooling performance.
- **RANDOM RESTART**
  Protects against damage to electrical circuits by preventing all units from starting at one time after power disruption. Random restart occurs in 3 to 4 min.
- **EVAPORATOR COIL FREEZE PROTECTION**
  Prevents ice build-up on coils and compressor damage during the cooling mode. Attached to the coil, a temperature sensor will de-energize the compressor when freezing conditions are detected and re-energize the compressor when the coil warms up again.
- **DUCTABLE RETURN AIR**
  Permits the connection of return air ductwork using the provided tabs (usually not required) on the inlet of the evaporator coil. (Figure 5, pg. 9)
  Note: Duct systems and registered sizes must be properly designed for the CFM and external static pressure rating of the unit.
- **ADJUSTABLE OUTSIDE AIR (MANUAL)**
  Meets code requirements for outside air introduction. The air vent (Figure 6, pg. 9) allows up to 50 CFM of outside air to be introduced into the equipment closet. The air mixes with return air entering the closet through the return air grille.
  Note: Negative pressure can be introduced through an external source to raise the 50 CFM level. Consult with the factory.
- **COMPRESSOR RESTART DELAY – (3 MIN.)**
  Ensures that system pressure equalizes before the system restarts, so compressor life is extended.
- **LOW AMBIENT LOCKOUT**
  Locks out compressor at 40ºF and below, thus extending compressor life.
- **ELECTRICAL DISCONNECT**
  Makes service and maintenance easier. (Factory-installed)
- **FILTER BRACKETS**
  Installed over evaporator coil and shipped with throw-away filter (20" x 24" x 1"; see Figure 5, pg. 9). (Field-installed)
- **UNIQUE "SLEEVE DRAIN" CONDENSATE SYSTEM**
  (Factory-installed) – Connects evaporator drain pan to a vertical pipe connection in the unit's base pan via a drain line. Evaporator condensate is delivered from the unit to a catch tray in the wall sleeve and exits the sleeve through the ¾" male NPT fitting to allow complete piping of the drain to a condensate riser during the rough-in stage. This eliminates condensate connection problems when connecting the HVAC drain to the riser after the HVAC unit is installed in the closet. Unit can be removed for service without disconnecting the condensate piping. Additional closet space is not needed to connect the drain.
- **SECONDARY OVERFLOW**
  Should the primary condensate riser become clogged, water will fill the catch tray and be diverted through the sleeve to the exterior of the building, ensuring no leakage into the interior area. Rain water entering the sleeve is automatically diverted to the building exterior.

NOMENCLATURE



VTC MODEL SPECIFICATIONS—COOLING/ELECTRIC HEAT

ELECTRICAL DATA (208/240V-1 PH-60HZ)

MODEL	ELECTRIC HEAT DATA						BLOWER DATA		CONDENSER DATA				MIN. CIRCUIT AMPS		MAX. CIRCUIT PROTECTION		SHIP WEIGHT (LBS.)
	kW		BTU/H		HEATING AMPS		EVAPORATOR MOTOR		COMPRESSOR		CONDENSER MOTOR						
	240V	208V	240V	208V	240V	208V	AMPS	HP	RLA	LRA	FLA	HP	208V	230V	208V	230V	
VTC093E-0	0	0	0	0	0	0							7	7	15	15	
VTC093E-2	2	1.5	6,800	5,100	9	7.9							10	12	15	15	
VTC093E-3	3	2.3	10,200	7,700	13.2	11.5	0.7	⅛	4.5	25.0	0.5	1/15	15	17	15	20	245
VTC093E-4	4	3	13,600	10,200	17.4	15.1							19	22	20	25	
VTC123E-0	0	0	0	0	0	0							9	9	15	15	
VTC123E-2	2	1.5	6,800	5,100	9	7.9							10	12	15	15	
VTC123E-3	3	2.3	10,200	7,700	13.2	11.5	0.7	⅛	5.6	29.0	0.5	1/15	15	17	15	20	245
VTC123E-4	4	3	13,600	10,200	17.4	15.1							19	23	20	25	
VTC123E-5	5	3.8	17,000	12,800	22	19							24	28	25	30	
VTC183E-0	0	0	0	0	0	0							13	13	20	20	
VTC183E-2	2	1.5	6,800	5,100	9.2	8.1							13	13	20	20	
VTC183E-3	3	2.3	10,200	7,700	13.4	11.7							15	17	20	20	
VTC183E-4	4	3	13,600	10,200	17.5	15.3							20	22	25	25	
VTC183E-5	5	3.8	17,000	12,800	22	19	0.9	⅛	6.5	43.0	0.7	1/10	24	28	25	30	255
VTC183E-6	6	4.5	20,500	15,350	26	23							29	33	30	35	
VTC183E-8	8	6	27,300	20,500	34	30							38	43	40	45	
VTC183E-10	10	7.5	34,100	25,600	43	37							47	54	50	60	
VTC243E-0	0	0	0	0	0	0							20	20	30	30	
VTC243E-3	3	2.3	10,200	7,700	14	12.3							20	20	30	30	
VTC243E-4	4	3	13,600	10,200	18.2	15.9							22	24	30	30	
VTC243E-5	5	3.8	17,000	12,800	22	20	2.6	¼	11.5	54.0	2.3	¼	26	29	30	30	255
VTC243E-6	6	4.5	20,500	15,350	27	23							31	35	35	40	
VTC243E-8	8	6	27,300	20,500	35	30							40	45	40	50	
VTC243E-10	10	7.5	34,100	25,600	43	38							49	55	50	60	

COOLING PERFORMANCE DATA

MODEL	STANDARD RATINGS[1]	
	BTU/H	EER
VTC093E	8,900	9.0
VTC123E	11,500	9.0
VTC183E	17,600	9.0
VTC243E	23,100	9.0

[1] Tested in accordance with ARI Standard 310/380-93 at 95°F DB/75°F WB outdoors and 80°F DB/67°F WB indoors.

VTC MODEL SPECIFICATIONS—COOLING/ELECTRIC HEAT (CONT.)

BLOWER DATA

MODEL	MOTOR SPEED[1] CONNECTION	CFM VS. EXTERNAL STATIC PRESSURE							
		0.05	0.10	0.15	0.20	0.25	0.30	0.35	0.40
VTC093E	High	490	475	460	450	435	420	400	---
	Med	375	360	350	340	330	315	300	---
	Low	290	280	270	260	240	230	215	---
VTC123E	High	490	475	460	450	435	420	400	---
	Med	375	360	350	340	330	315	300	---
	Low	290	280	270	260	240	230	215	---
VTC183E	High	660	655	650	645	640	635	625	610
	Med	580	578	575	570	565	560	550	540
	Low	485	480	475	470	465	460	455	450
VTC243E	High	1,030	1,000	980	950	920	890	860	820
	Med	880	860	840	820	790	760	730	710
	Low	770	760	750	740	720	700	680	660

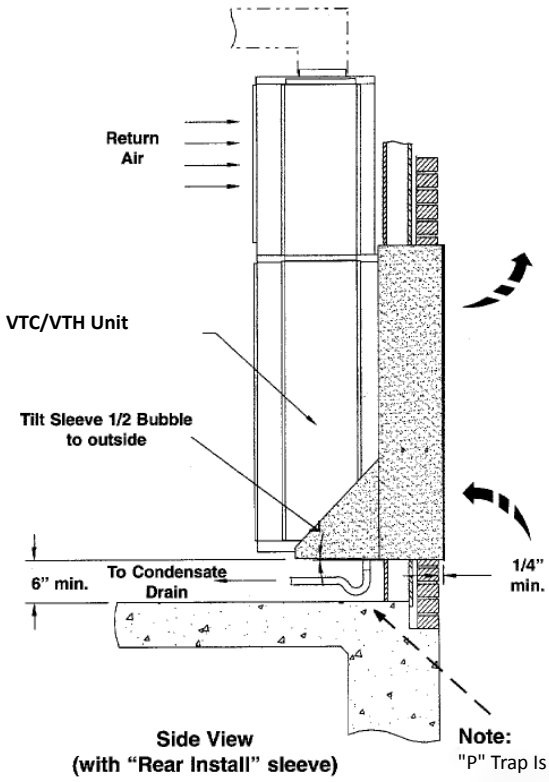
Notes:

(1) VTC12, 18- and 24-blower motors are factory-wired for medium (cooling) and low (heating) fan operation. VTC09 is low speed for both.

(2) VTH12, 18- and 24-blower motors are factory-wired for medium (cooling/heat pump) and low (electric heat) speed operation. VTH09 is low speed in all modes.

DIMENSIONAL DATA

*See Wall Sleeve Installation Instructions for complete details.



Side View
(with "Rear Install" sleeve)

Note:
"P" Trap Is shown for illustration purposes only. It may not be required by local codes.

VTH MODEL SPECIFICATIONS—COOLING/ELECTRIC HEAT

ELECTRICAL DATA (208/240V-1 PH-60HZ)

MODEL	ELECTRIC HEAT DATA						ELOWER DATA		CONDENSER DATA				MIN. CIRCUIT AMPS		MAX. CIRCUIT PROTECTION		SHIP WGT (LES)
	kW		ETU/H		HEATING AMPS		EVAPORATOR MOTOR		COMPRESSOR		MOTOR						
	240V	208V	240V	208V	240V	208V	AMPS	HP	RLA	LRA	FLA	HP	208V	230V	208V	230V	
VTH093E	2	1.5	6800	5,100	9	7.9	0.7	⅛	4.5	25	0.5	1/15	10	12	15	15	245
	3	2.3	10,200	7,700	13.2	11.5							15	17	15	20	
	4	3	13,600	10,200	17.4	15.1							19	22	20	25	
VTH123E	2	1.5	6800	5,100	9	7.9	0.7	⅛	5.6	29	0.5	1/15	10	12	15	15	245
	3	2.3	10,200	7,700	13.2	11.5							15	17	15	20	
	4	3	13,600	10,200	17.4	15.1							19	23	20	25	
	5	3.8	17,000	12,800	22	19							24	28	25	30	
VTH183E	2	1.5	6,800	5,100	9.2	8.1	0.9	⅛	6.5	43	0.7	1/10	13	13	20	20	255
	3	2.3	10,200	7,700	13.4	11.7							15	17	20	20	
	4	3	13,600	10,200	17.5	15.3							20	22	25	25	
	5	3.8	17,000	12,800	22	19							24	28	25	30	
	6	4.5	20,500	15,350	26	23							29	33	30	35	
	8	6	27,300	20,500	34	30							38	43	40	45	
	10	7.5	34,100	25,600	43	37							47	54	50	60	
VTH243E	3	2.3	10,200	7,700	14	12.3	2.6	¼	11.5	54	2.3	¼	20	20	30	30	255
	4	3	13,600	10,200	18.2	15.9							22	24	30	30	
	5	3.8	17,000	12,800	22	20							26	29	30	30	
	6	4.5	20,500	15,350	27	23							31	35	35	40	
	8	6	27,300	20,500	35	30							40	45	40	50	
	10	7.5	34,100	25,600	43	38							49	55	50	60	

IMPORTANT:

- Heat pump does not operate simultaneously with electric heat.
- Electrical data in the aEove taEle only applies to units manufactured after 8/1/2000 (data code G08). Contact factory for electrical data for units manufactured prior to 8/1/2000.
- Compressors in these models (after 8/1/2000) do not operate simultaneously with heater elements.
- Models manufactured Eefore 8/1/2000 (excluding the VTH24-HP) did feature simultaneous operation and therefore had higher circuit ampacities.

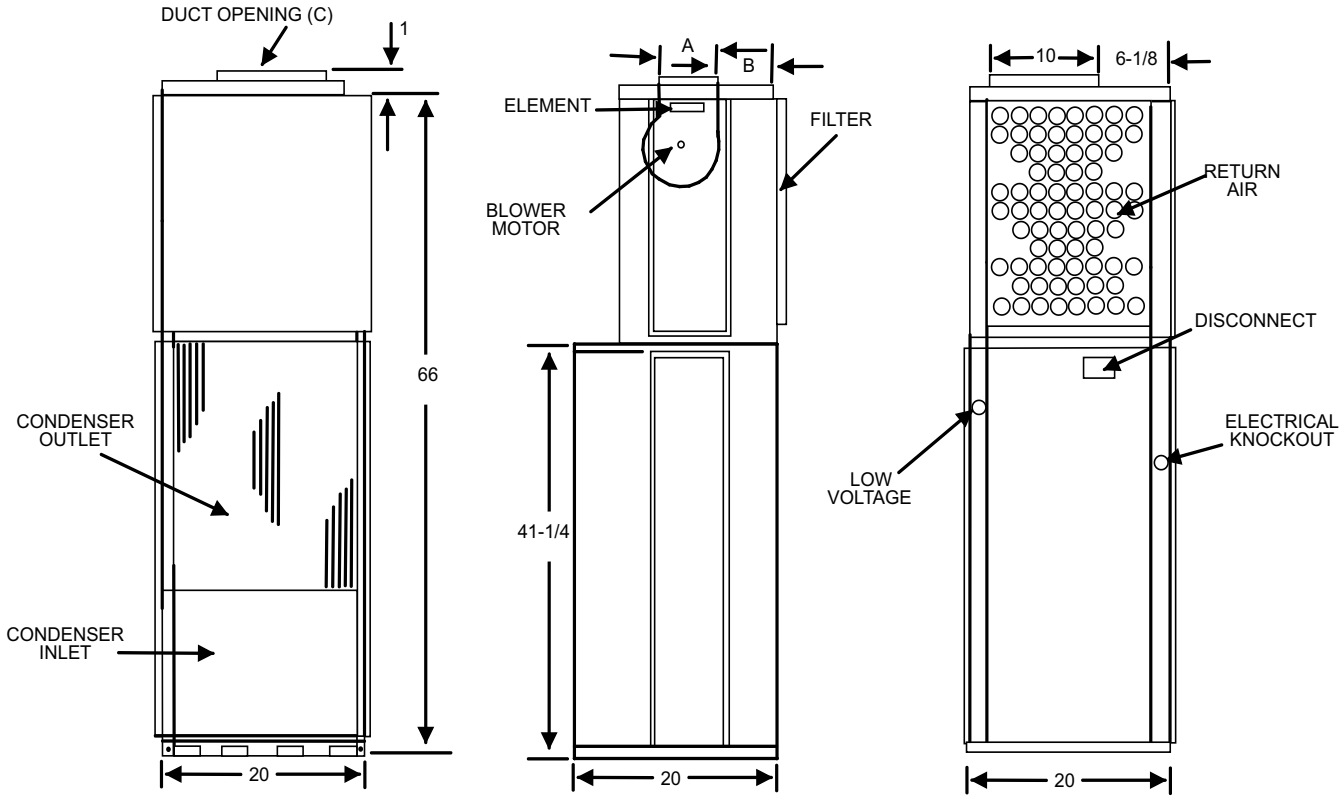
PERFORMANCE DATA

MODEL	COOLING DATA		HEATING DATA[2]		
	BTU/H	EER	BTU/H	WATTS	COP
VTH093E	8,900	9.0	8,500	795	3.0
VTH123E	11,400	9.0	11,500	1,001	3.0
VTH183E	17,400	9.0	16,700	1,582	3.0
VTH243E	22,600	9.0	22,400	1,967	3.0

[1] Tested in accordance with ARI Standard 310/380-93 at 95°F DB/75°F WB outdoors and 80°F DB/67°F WB indoors.

[2] 47°F DB, 43°F WB Outdoor/70°F DB, 60°F WB Indoor

DIMENSIONAL DATA



	A	B
VTC/VTH 09, 12, 18	6½	6½
VTC/VTH 24	10	3

ACCESSORIES

- **WALL-MOUNTED LOW-VOLTAGE THERMOSTAT**
  Easily controls the unit. Low-voltage wires exit the left side of the cabinet. (See Pg. 8.)
- **"FLUSH STYLE" ARCHITECTURAL LOUVER**
  Attaches to the outside of the wall sleeve for a flush appearance. Louvers recess into the wall sleeve; stock and custom colors available.
- **WALL SLEEVES**
  Standard 22" width x 44" Height. Six sleeves (three rear installation, three side installation) available for varying wall widths, from 5" to 20". (See chart below and Figure 7, page 9.)
  Shipped separately to allow installation during construction, each sleeve includes a factory installed "weather guard" to cover the sleeve opening during construction phase.
  Note: Due to better access to unit, wall sleeves installed in the rear application are recommended over side-installed wall sleeves whenever possible.

Side Wall Sleeves

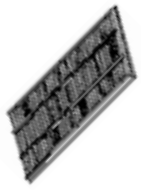
MODEL	WALL DEPTH	SLEEVE DEPTH
SWS958A	5" - 8" Walls	26"
SWS9812A	8" - 12" Walls	30"
SWS91214A	12" - 15" Walls	33"
	20" Walls	

Note: Side-installed wall sleeves require different closet sizes and configurations. (See Page 10.)

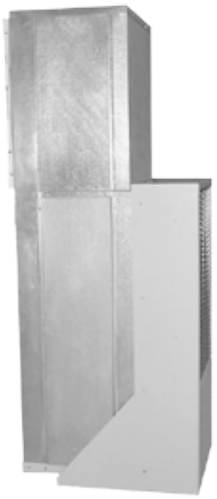
Rear Wall Sleeves

MODEL	WALL DEPTH	SLEEVE DEPTH
VWS95BA	5" - 8" Walls	26"
VWS9812A	8" - 12" Walls	30"
VWS91214A	12" - 15" Walls	33"
	20" Walls	

Architectural Grilles (Available in various colors)

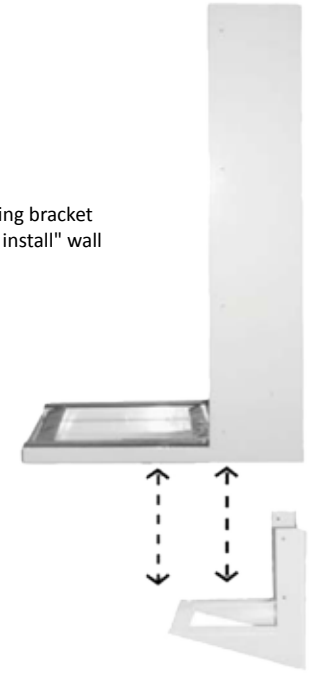
MODEL	WALL DEPTH	
AGKV01CB	Anodized Cluminum (Clear)	
AGKV01DB	Dark Broze	
AGKV01TB	Stonewood	
AGKV01WB	White	
AGKV015B	Custom Color	

UNIT WITH INSTALLED REAR SLEEVE AND FLUSH-STYLE LOUVER



Note: Sleeve, louver, filter, and thermostat required for each general installation.

Separate wall mounting bracket is shipped with "side install" wall sleeves.



Side Install Sleeve

ACCESSORIES (CONT.)

- **WALL-MOUNTED LOW-VOLTAGE THERMOSTAT***

  Easily controls the unit. Low-voltage wires exit the left side of the cabinet.

  * Available for straight cool/hydronic chassis and heat pump chassis.

- **UNIT MOUNTED FREEZE SENSOR (UMF01A)**

  De-energizes the unit when reduced air flow or ice build-up are detected. Re-energizes the unit when normal operating conditions resume.

- **HYDRONIC FLOW CONTROL MODULE (HFC01A)***

  Regulates the amount of hot water heat to the unit. *Applies to hydronic models only.

1246001	Straight Cool/ Hydronic Chassis	Digital cool - off - heat, auto - on
1246003	Heat Pump Chassis	Digital cool - off - heat, auto - on

- **OPTIMAL ACCESS/RETURN AIR PANEL**

  Panels are available as louvered or non-louvered and are insulated to for sound reduction with tamper-proof screws. Louvered panel includes an 18" x 24" x 1" filter. Non-louvered panels required external return air grilles and unit mount filters.

- **FLOAT SWITCH (FSE306A)***

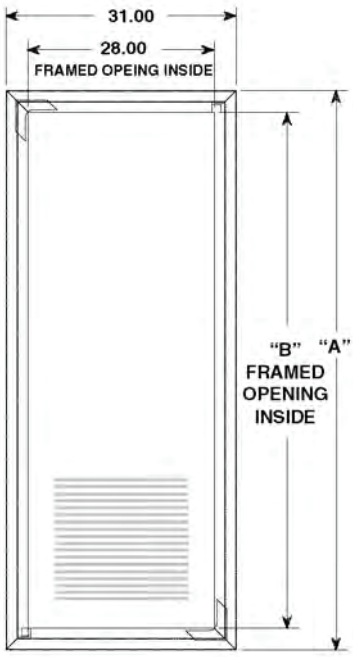
  Opens the condensate pan automatically when water rises in the pan and shuts off the system by breaking low or line voltage current to the compressor. Switch is normally closed. By clipping the float switch to the side of the auxiliary drain pan, ceiling water damage is prevented. In some areas, this switch can replace an auxiliary drain pan. Local building codes should be checked for application.

  Note: The float switch must be installed before unit is set in the sleeve. *Applies to hydronic models only.

Access/Return Air Panel

Access/Return Air Panel[3] [4]

PART #	DESCRIPTION	DIMENSIONS (H X W)		SHIP WEIGHT
		FRAME	OPENING	
931-11	Louvered[1]	87 x 31	84 x 28	55
931-12	Non-Louvered[2]	87 x 31	84 x 28	55
931-13	Louvered[1]	82 x 31	79 x 28	55
931-14	Non-Louvered[2]	82 x 31	79 x 28	55



Note: A solid door or panel with a side wall return air grille will result in lower sound levels.

PART #	A	B
N/LWPO187	87	84

ACCESSORIES (CONT.)

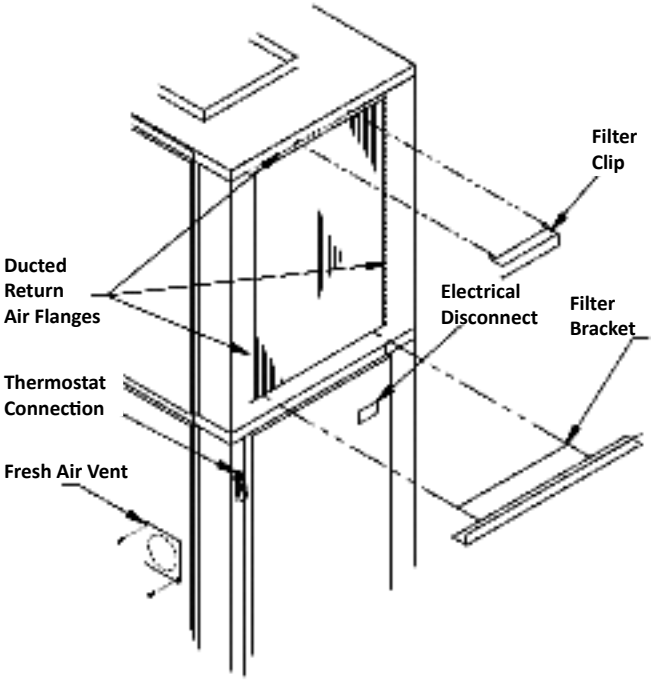


Figure 5—Filter Bracket Detail

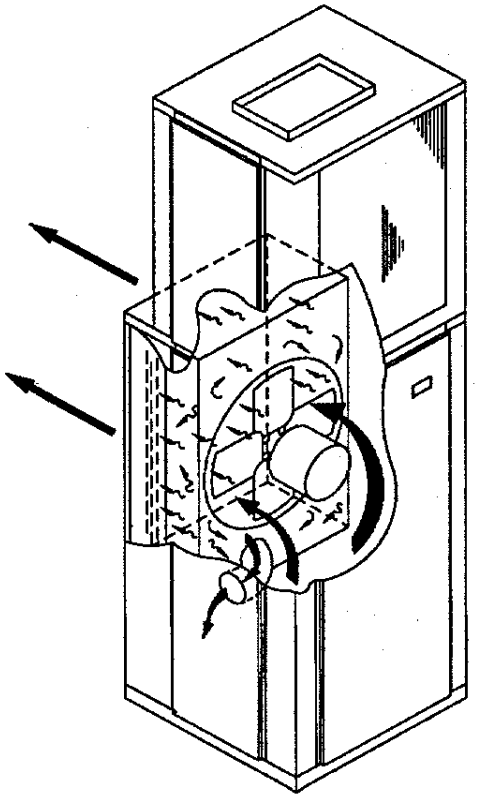


Figure 6

OUTDOOR AIR VENTILATION

One end of a 4” aluminum vent pipe is connected to the condenser venturi and the other end is connected to the side of the VTC/VTH cabinet. A mesh screen is installed inside the vent pipe, and a metal plate on the side of the cabinet covers the opening of the vent pipe. Up to 50 CFM of outside air is introduced into the equipment closet by removing the metal cover plate. The outside air then mixes with the return air and is pulled through the evaporator coil and into the supply duct. The cover plate can be re-installed to partially close the outside air opening if less than 50 CFM is desired. An external source of negative pressure (i.e., a bathroom fan) could be used to introduce more than 50 CFM of outside air. Consult with factory for further details.

Note: It is suggested that a minimum 24” door be used for access. Closet interior may be smaller than listed here as long as the door opening allows for removing the unit. Door opening must line up with unit to allow removal.

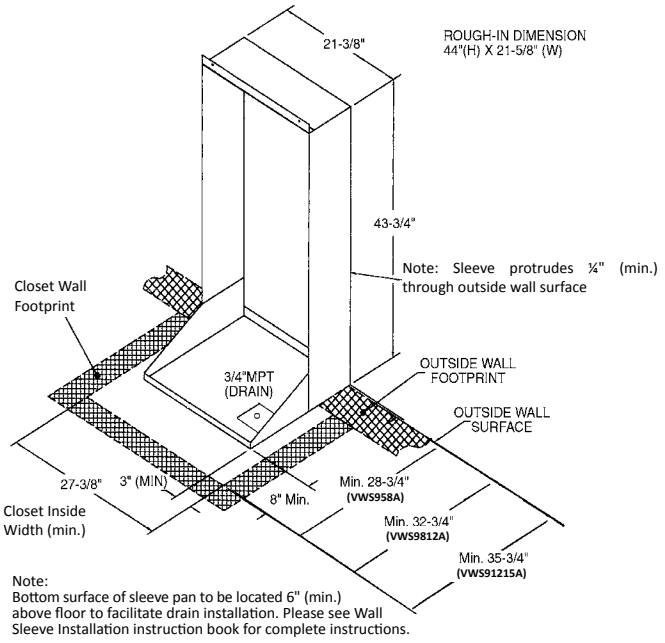
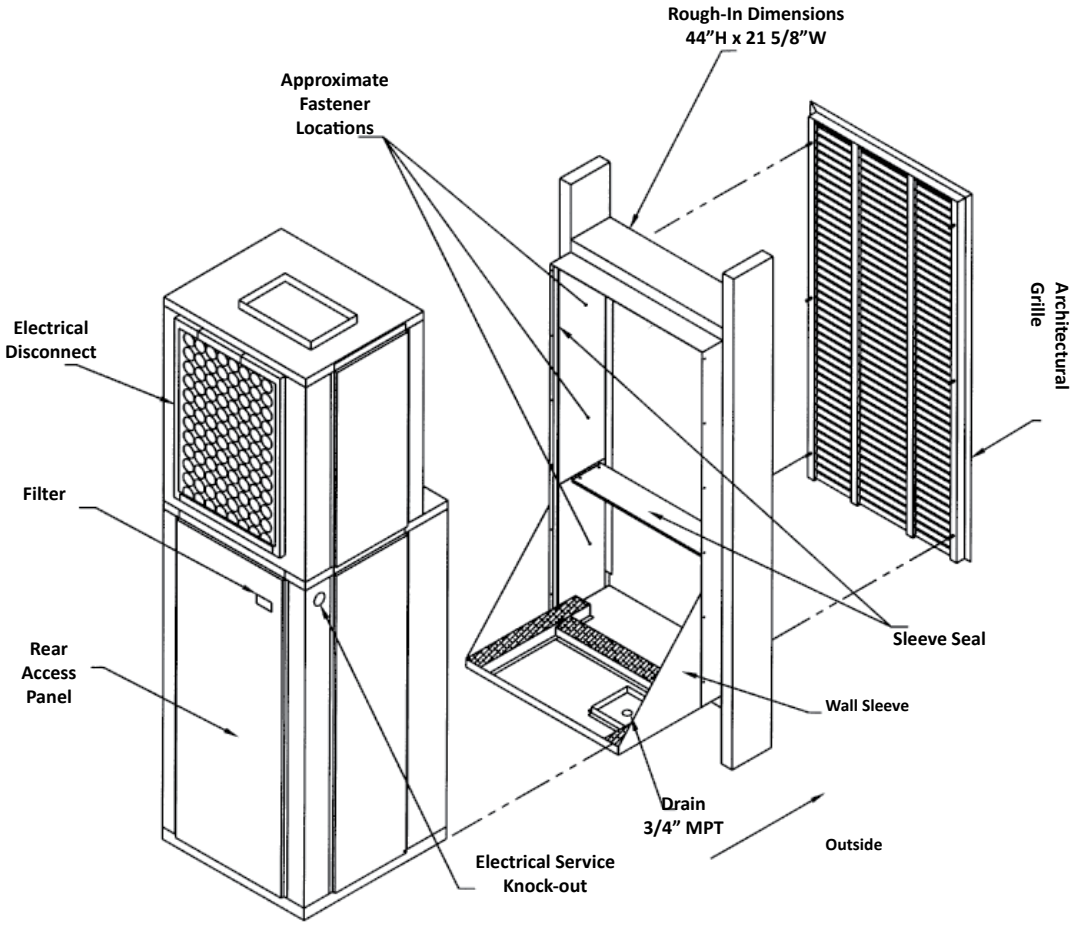


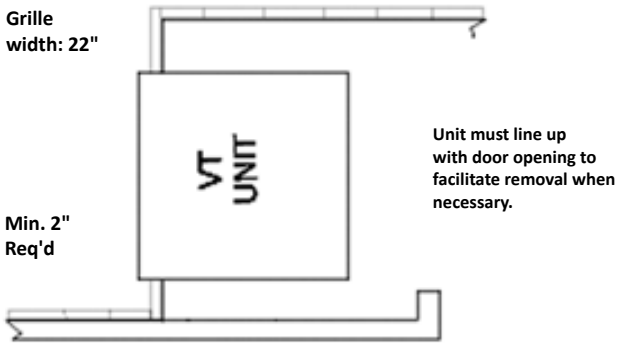
Figure 7

GENERAL ASSEMBLY



INSTALLATION

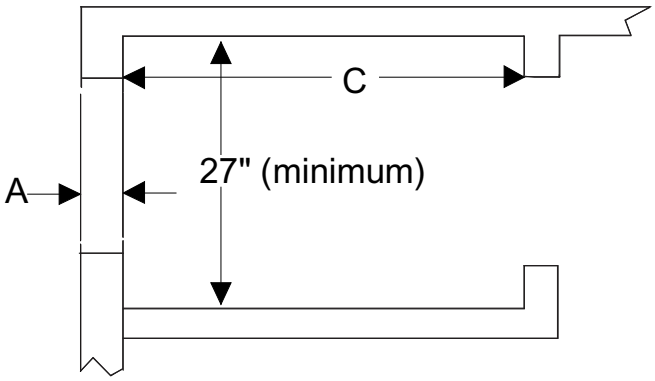
Rear Installation



Notes:

1. Sleeve rough-in opening is 44” (H) x 21-5/8” (W)
2. Bottom of opening should be approximately 6” above floor level.
3. Minimum 3” clearance is required on all sides of the unit.

Rear Installation—Closet Dimensions



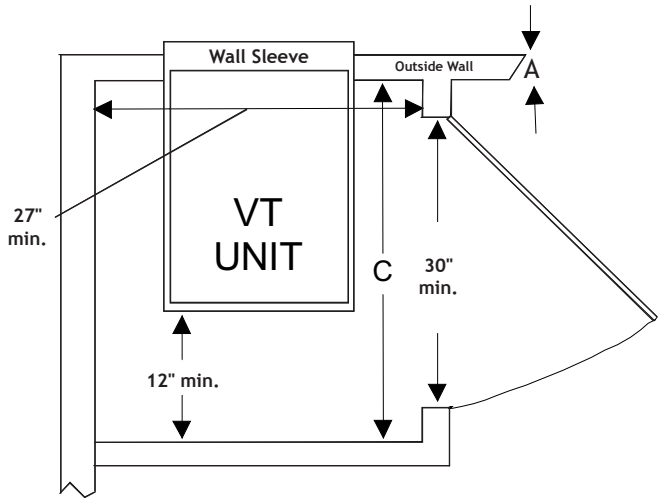
Instructions:

To find the minimum closet depth (dimension “C”), use the following method:

Determine dimension “A” which is the total finished wall thickness.

* For 5”-8” outside wall thickness, subtract “A: from 29” (C” = 29 - “A”)
* For 8”-12” outside wall thickness, subtract “A: from 33” (C” = 33 - “A”)
* For 12”-15” outside wall thickness, subtract “A” from 36” (C” = 36 - “A”)

Side Installation—Closet Dimensions



Instructions:

To find the minimum closet depth (dimension “C”), use the following method:

Determine dimension “A”, which is the total finished wall thickness.

* For 5”-8” outside wall thickness, subtract “A: from 39” (C” = 39 - “A”)
* For 8”-12” outside wall thickness, subtract “A: from 43” (C” = 43 - “A”)
* For 12”-15” outside wall thickness, subtract “A” from 46” (C” = 46 - “A”)

GUIDE SPECIFICATIONS

Ratings – Each unit must meet the following specifications:

ARI rating of _____BTU/h cooling (and _____ BTU/h reverse cycle heating with a COP of _____at 47 °F O.D.)

Electric resistance heat of _____ BTU/h. Total Amp draw must be of _____ and _____ Watts at _____ volts.

The EER must be a minimum of _____ EER.

Unit Chassis — Each unit must be slide-out design, ready for installation into closet space. Unit must fit into closet space not to exceed 24" x 24" with overhead duct connections designed to .25 ESP. Unit must be tested for conformance to ASTME water infiltration specification ASTME 331-86, which ensures no water infiltration when tested at 8" rain per hour at 63 mph wind for 15 min.

Filter — Filter provided with the unit. Installer must provide for easy accessibility.

Heat Pumps — Each unit must include a changeover thermostat that senses an outside coil switch-over temperature of 25°F, lock-open refrigerant-reversing valve during heat pump operation, temperature-activated defrost drain and automatic emergency heat operation to over-ride the heat pump's change-over thermostat and bring on electric resistance heaters in the event of a sealed-system failure.

Compressor — The compressor must be hermetically sealed, internally isolated, rotary-type and permanently mounted on rubber isolators. No removal or adjustment of compressor hold-down bolts is to be required during installation.

Unit Controls — The unit must be controlled by a thermostat. Other unit controls must include a concealed ventilation control to allow the introduction of filtered air into the room, a concealed fan mode switch to allow the owner to preset for either continuous fan or thermostatically cycled fan operation. Additionally, the following controls are to be included as standard on all units:

- Compressor restart delay
- Random restart circuit
- Front desk control
- Evaporator coil freeze protection
- Fan delay
- Low ambient lock-out

Labor is not covered. This is the responsibility of the installing contractor.

Evaporator/Condenser Fans — Direct drive with a permanent split capacitor, two-speed motor. Must have a condenser fan and separate indoor evaporator motor. Condenser fan must be propeller type and evaporator fan must be blower type.

Coils — Unit's coils must have copper tubing expanded into rippled-edge louvered aluminum fins.

Discharge and Return Air — A unit must be able to discharge air through an overhead duct system with an external static pressure capability of 0.35" for 9,000 and 12,000 unit sizes and 0.40" for 18,000 and 24,000 unit sizes. The return air must be capable of a free return at the unit or a ducted return.

Warranty — Limited One-Year Warranty; Second- through Fifth-Year Limited Replacement Compressor Warranty. Full warranty details are available at www.amana-hac.com.

Wall Sleeve — The wall sleeve must be of industry-accepted dimensions: from 21" [d] to 28" [d] (dependent upon wall width, from 5" to 15") x 22" [w] x 44" [h] and constructed of insulated galvanized steel for corrosion resistance. Sleeve must be shipped with weather-resistant rear closure panel installed.

Condensate Drain — The unit must have a condensate draining system. A vertical pipe connection in the base pan is connected to the evaporator drain pan via a drain line. Condensate passes from the unit to a catch tray, located in the wall sleeve, and exits the sleeve through a ¾" male NPT fitting. (This allows piping to be done during construction stage).

The unit must also have a secondary condensate draining system for overflow. If the primary condensate draining system becomes clogged, water will be directed from the catch tray, through the sleeve, to the outside of the building. Any external water source (rain, sleet, etc.) entering the sleeve will also be diverted to the building's exterior.

Outdoor Grilles — Must be architecturally extruded and made of anodized aluminum (AGKV***A). All other grilles must be submitted to our company for feasibility, airflow characteristics and compliance with U.L. regulations, where necessary.

Hydronic Heat Units — Required for heating functions instead of electric resistance heaters. Unit must retain complete service access with the kit installed. Proper water or steam valves must be used; however, they are not included with the Hydronic Heat Unit.

Thermostats — A manual, auto-changeover or programmable thermostat must be installed to provide full remote operation of the chassis.

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Heating & Air Conditioning

Amana®

LASTS AND LASTS AND LASTS.®

2-STAGE HEAT/1-STAGE COOL HEAT PUMP THERMOSTAT

Non-Programmable

2246003

AMANA BRAND QUALITY

Americans have been relying on long-lasting Amana brand products since 1934, when Amana, Iowa, native George Foerstner accepted the challenge of building a dependable beverage cooler. Since then, the Amana brand has enjoyed many firsts, including developing the first cold storage locker, being the first manufacturer to nationally market an upright freezer for home use, and introducing the first portable countertop microwave oven.

FEATURING:

- Premium **Amana® brand Quality**

Hardwired

R	C	Y	W	O/B	GH	GL

- 2-stage heat/1-Stage Cool Heat Pump
- 1-stage heat/1-Stage Cool Electric Heat
- Patented Thermal Intrusion Barrier
- Large Display with Backlight
- Accuracy: ±1°F
- Adjustable Temperature Differentials
- Adjustable Maximum Heat/Minimum Cool Set Points
- Hardwired
- Manual Changeover
- Easy Access Terminal Block
- Field Adjustable Calibration
- Selectable °F or °C
- Keypad Lockout
- Soft-Touch Controls
- 2-Speed Fan

2246003

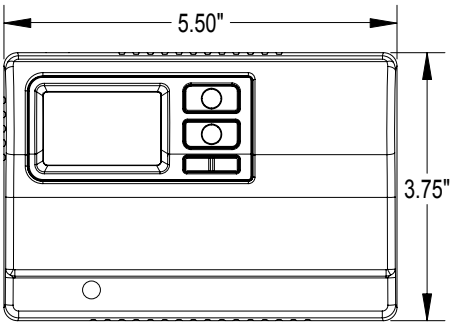
Non-Programmable Thermostat

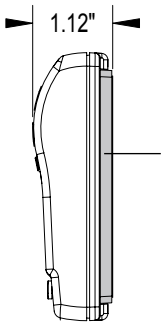
Heat Pump or Electric Heat

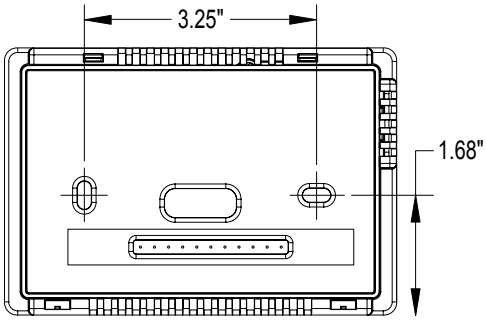
Hardwired

- 2-Stage Heat/1-Stage Cool Heat Pump
- Manual Changeover
- 2-Speed Fan

Dimensions:







Specifications

Electrical Rating:

- 24 VAC (18-30 VAC)
- 1 amp maximum per terminal
- 4 amp maximum total load
- Easy access terminal block

Temperature Control Ranges:

- 45°F to 90°F, Accuracy: ±1°F

System Configurations:

- 2-stage heat/1-stage cool heat pump

Terminations: R, C, Y, W, O/B, GH, GL

Heating & Air Conditioning
Amana®
LASTS AND LASTS AND LASTS.®

Other Amana® brand thermostats available:

2246002

- 1-Stage Heat/ 1-Stage Cool
- 1-Stage Heat Pump
- 4- or 5-Wire Compatible (C is Optional for Non-Heat Pump Systems)
- Manual Changeover

2246007

- 2-Stage Heat/Cool or 2-Stage HP
- Large Display with Backlight
- Field Temperature Calibration

2246008

- 2-stage Heat/Cool or 2-Stage HP
- Large Display with Backlight
- Field Temperature Calibration

Patent No. Design: 424,953
Patent No. Thermal Intrusion Barrier: 6,597,275
Patented - SimpleSet™ Target Programming Technology: 7,575,179B2

Specifications subject to change without notice.

www.amana-PTAC.com

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PM-PSAT-003 10-12

Made in USA

Amana® 2246003

Non-Programmable Electronic Thermostat

Electric Heat or HP, Manual Changeover, Hardwired

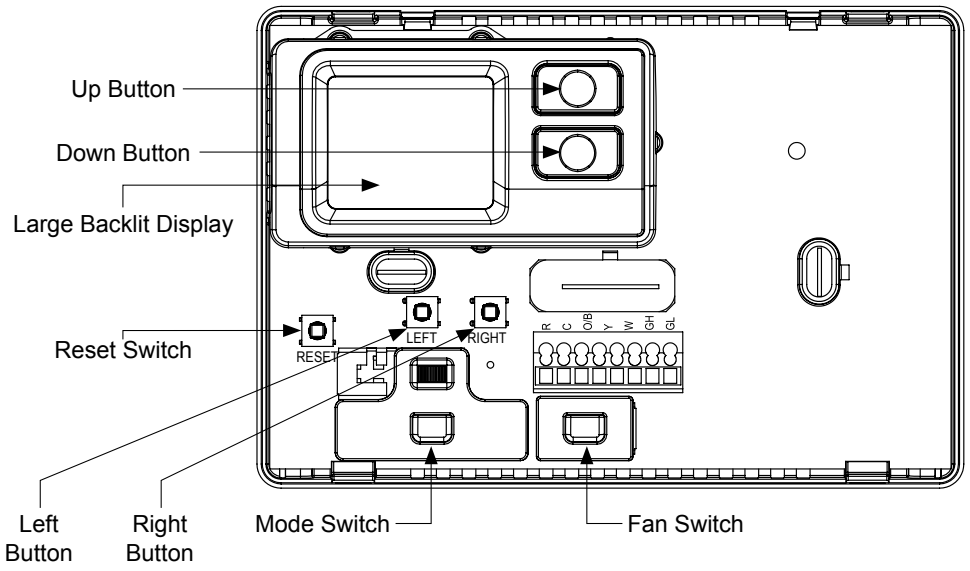
- **Configurable**
- **2-Stage Heat Pump Systems**
- **1-Stage Electric Heat**
- **Backlit Display**
- **Field Calibration Feature**
- **Relay Outputs (minimum voltage drop in thermostat)**
- **Ideally Suited for:**
  – Residential (New Construction/Replacement)
  – Light Commercial

Installation, Operation & Application Guide

www.amana-ptac.com

Amana®

Parts Diagram



Specifications

Electrical rating: • 24 VAC (18-30 VAC)
• 4 amp maximum total load
• 1 amp maximum per terminal

Temperature control range: 45°F to 90°F (7°C to 32°C) **Accuracy:** ± 1°F (± 0.5°C)

System configurations: 2-stage heat & 1-stage cool heat pump, 1-stage electric heat

Timing: *Anti-short Cycle:* 4 minutes
Backlight Operation: 10 seconds

Terminations: R, C, O/B, Y, W, GH, GL

Important Safety Information

WARNING!: ***Always turn off power at the main power supply before installing, cleaning, or removing thermostat.***

- This thermostat is for 24 VAC applications only; do not use on voltages over 30 VAC
- All wiring must conform to local and national electrical and building codes
- Do not use air conditioning when the outdoor temperature is below 50 degrees; this can damage your A/C system and cause personal injuries
- Use this thermostat only as described in this manual

Package Contents/Tools Required

Package includes: **Amana® 2246003** thermostat on base, thermostat cover, wiring labels, screws and wall anchors, Installation, Operation and Application Guide

Tools required for installation: Drill with 3/16” bit, hammer, screwdriver

To Remove Existing Thermostat

ELECTRICAL SHOCK HAZARD – ***Turn off power at the main service panel by removing the fuse or switching the appropriate circuit breaker to the OFF position before removing the existing thermostat.***

1. Turn off power to the heating and cooling system by removing the fuse or switching the appropriate circuit breaker off.
2. Remove cover of old thermostat. This should expose the wires.
3. Label the existing wires with the enclosed wire labels before removing wires.
4. After labeling wires, remove wires from wire terminals.
5. Remove existing thermostat base from wall.
6. Refer to the following section for instructions on how to install this thermostat.

To Install Thermostat

ELECTRICAL SHOCK HAZARD – ***Turn off power at the main service panel by removing the fuse or switching the appropriate circuit breaker to the OFF position before removing the existing thermostat.***

IMPORTANT: Thermostat installation must conform to local and national building and electrical codes and ordinances.

⁂ **Note:** *Mount the thermostat about four feet above the floor. Do not mount the thermostat on an outside wall, in direct sunlight, behind a door, or in an area affected by a vent or duct.*

1. Turn off power to the heating and cooling system by removing the fuse or switching the appropriate circuit breaker off.
2. To remove cover, insert and twist a coin or screwdriver in the slots on top of the thermostat.
3. Put thermostat base against the wall where you plan to mount it (Be sure wires will feed through the wire opening in the base of the thermostat).
4. Mark the placement of the mounting holes.
5. Set thermostat base and cover away from working area.
6. Using a 3/16” drill bit, drill holes in the places you have marked for mounting.
7. Use a hammer to tap supplied anchors in mounting holes.
8. Align thermostat base with mounting holes and feed the control wires through wire opening.
9. Use supplied screws to mount thermostat base to wall.
10. Insert stripped, labeled wires in matching wire terminals. See “Wiring Diagrams” section of this manual.

    CAUTION!: *Be sure exposed portion of wires does not touch other wires.*
11. Gently tug wire to be sure of proper connection. Double check that each wire is connected to the proper terminal.
12. Seal hole for wires behind thermostat with non-flammable insulation or putty.
13. Replace cover on thermostat by snapping it in place.
14. Turn on power to the system at the main service panel.
15. Test thermostat operation as described in “Testing the Thermostat”.

Terminal Designator Descriptions

R – 24 VAC hot
C – 24 VAC common
O/B – Reversing valve
Y – 1st stage cool, 1st stage HP heat for HP
W – 2nd stage heat for HP, 1st stage electric heat
GH – Fan High
GL – Fan Low

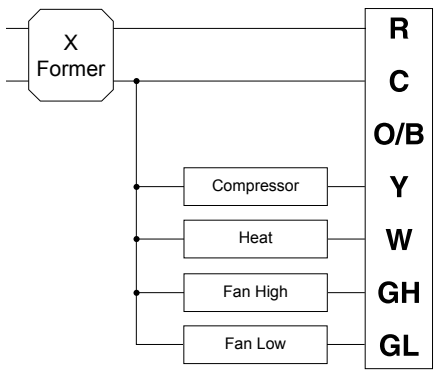
Output Chart

	1ST Cool	1ST Heat	2ND Heat
HSo = Heat Pump (cool active reversing valve)	Y, GL, O	Y, GL	Y, GL, W
HSb = Heat Pump (heat active reversing valve)	Y, GL	Y, GL, B	Y, GL, B, W
HSE = Electric Heat	Y, GL	W, GL	W, GL

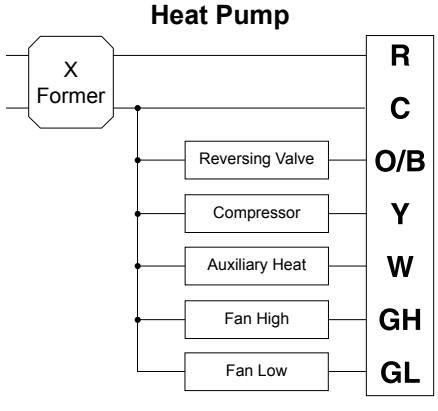
⁂ **Note:** *GL will be on during heating and cooling cycle when fan switch is set to* ***Auto***

Wiring Diagram Conversions

Cool & Electric Heat



Heat Pump



Configuration Mode

The configuration mode is used to set the **Amana® 2246003** to match your heating/cooling system.

To configure the **Amana® 2246003** , perform the following steps:

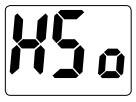
1. Slide the **Mode** switch to the **OFF** position.
2. Remove the cover of the thermostat by gently pulling on one of the corners.
3. Simultaneously hold the **LEFT** & **RIGHT** buttons in for 2 seconds while the **Amana® 2246003** is in **OFF** mode.
4. Press the **down** or **up** button to change settings within each screen.
5. Press the **RIGHT** button to advance to the next screen.
   ⁂ **Note:** *The **LEFT** button will return you to the previous screen.*
6. To exit configuration mode, slide the **Mode** switch to **Heat** or **Cool**.

Configuration Mode Settings

The setup screens for Configuration Mode are as follows:

1. **Temperature Scale (F or C) –** Choose Fahrenheit or Celsius.
   Press the **down** or **up** button to select.
   Press the **RIGHT** button to advance to the next screen.

2. **Heating System**
   HSo – Heat pump, cool active reversing valve



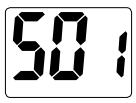
   HSb – Heat pump, heat active reversing valve

   HSE – Electric heat system

3. **Temperature Differential – Stage 1 – (1°F to 5°F) (0.5°C to 2.5°C)**
   Set the number of degrees between your "setpoint" temperature and your "turn on" temperature for first stage.
   Press the **down** or **up** button to set differential value.
   Press the **RIGHT** button to advance to the next screen.

4. **Temperature Differential – Stage 2 – (1°F to 5°F) (0.5°C to 2.5°C)** (shows only for HP)
   Set the number of degrees between when stage 1 turns on and stage 2 turns on.
   Press the **down** or **up** button to set differential value.
   Press the **RIGHT** button to advance to the next screen.

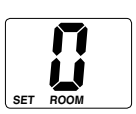
5. **Staged Off Outputs** (shows only for HP)
   Select whether the outputs for heating and cooling are staged off independently or are satisfied simultaneously.
   1 = Economy Mode – Outputs are staged on and off in accordance with set point and differential.
   0 = Comfort Mode – Outputs are staged on and and all stages cycle off simultaneously when set point is satisfied.
   Press the **down** or **up** button to select.
   Press the **RIGHT** button to advance to the next screen.



6. **Maximum Heat Setpoint** (45°F to 90°F) (7.0°C to 32.0°C)
   Adjust to control the maximum Heat set temperature allowed.
   Press the **down** or **up** button to select.
   Press the **RIGHT** button to advance to the next screen.

7. **Minimum Cool Setpoint** (45°F to 90°F) (7.0°C to 32.0°C)
   Adjust to control the minimum Cool set temperature allowed.
   Press the **down** or **up** button to select.
   Press the **RIGHT** button to advance to the next screen.

8. **Room temperature offset** (+9°F to -9°F) (+4.5°C to -4.5°C)
   Adjust to calibrate displayed room temperature to match actual room temperature.
   ⁂ **Note:** *When not set to 0, **ROOM** will display.*
   Press the **down** or **up** button to select.
   Slide **Mode** switch to **Heat** or **Cool** to exit configuration mode..



Starting the Thermostat

CAUTION!: *Do not use air conditioning when the outdoor temperature is below 50 degrees. This can damage your air conditioning system and cause personal injuries.*

1. Move the **High/Auto/Low** switch to the **Auto** position.
2. Move the **Cool/Off/Heat** switch to **Heat** or **Cool**, depending on the season.

Testing the Thermostat

Once the thermostat is installed, it should be thoroughly tested.

CAUTION!: ***Do not energize the air conditioning system when the outdoor temperature is below 50 degrees. It can result in equipment damage or personal injury.***

Cool Test

1. Slide **Mode** switch to **Cool** mode.
2. Adjust set temperature so it is 5 degrees below room temperature.
3. Air conditioning should come on within a few seconds.
4. Adjust the set temperature 2 degrees above the room temperature and the A/C should turn off. There may be a fan delay on your system.
   ⁂ **Note:** *There is a four minute time delay to protect the compressor after it turns off. To temporarily bypass the four minute delay, slide the **Mode** switch to **OFF** for 2 seconds and then back to **Cool**.*

Heat Test

1. Slide **Mode** switch to **Heat** mode.
2. Adjust the set temperature so it is 5 degrees above the room temperature.
3. Heat should come on within a few seconds.
4. Adjust the set temperature so it is 2 degrees below the room temperature and the heat should turn off. There may be a fan delay on your system.
   ⁂ **Note:** *For Heat pumps, there is a four minute time delay to protect the compressor after it turns off. To temporarily bypass the four minute delay, slide the **Mode** switch to **OFF** for 2 seconds and then back to **Heat**.*

Fan Test

1. Slide **Fan** switch to **High** position.
2. Indoor fan turns on in high speed.

3. Slide **Fan** switch to **Low** position.
4. Indoor fan turns on in low speed.

5. Slide **Fan** switch to **Auto** position.
6. Indoor fan turns off.

Mode of Operation

The **Amana® 2246003** is a thermostat for 24 VAC systems.

Heat Pump Operation

The thermostat activates the heat pump when the room temperature is below the heat set temperature (by the differential temperature). Auxiliary heat will be activated if the room temperature continues to drop. The heat outputs are staged off (configurable, setting 5) as the room temperature increases. The thermostat will not let the compressor come on for four minutes after it turns off. This protects your compressor.

Electric Heat Operation

The thermostat activated the electric heat when the room temperature is below the heat set temperature (by the differential temperature). The heat is turned off when the room temperature raises to one degree above the heat set point temperature.

When the room temperature is greater than the cool set temperature (by the differential temperature), the cooling device is activated. The thermostat will not let the compressor come on for four minutes after it turns off. This protects your compressor.

The **Amana® 2246003** has the following operating modes: **Cool**, **Off**, **Heat**. In **OFF** mode, the thermostat will not turn on heating or cooling devices. In the **Heat** mode, the thermostat controls the heating system. In the **Cool** mode, the thermostat controls the cooling system. The indoor fan can be turned on in all operating modes using the **Fan** switch.

- **Set fan to HIGH:** for continuous high speed operation
- **Set fan to LOW:** for continuous low speed operation
- **Set fan to AUTO:** for low speed fan operation only during a heat or cool cycle

Troubleshooting

Symptom	Remedy
No display	Check for 24 VAC at thermostat; display is blank when 24 VAC is not present
System fan does not come on properly	Verify wiring is correct
Thermostat turns on and off too frequently	Adjust temperature differential (see "Temperature Differential," Stage 1, Step 3)
Fan runs continuously	Check fan Low/Auto/HIgh switch. Low or High position runs indoor fan continuously
Room temperature is not correct	Verify wall hole is plugged with putty or insulation; calibrate thermostat (see "Configuration," Step 8)
ROOM displays	Room temperature offset is not zero (see "Configuration," Step 8)
Auxiliary heat not on soon enough	Adjust differential for 2nd stage heating if required (see Configuration, Steps 3 & 4)
Problem not listed above	Press the Reset button once; display will be refreshed